



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FEB 21 2020

REPLY TO THE ATTENTION OF

VIA EXPRESS MAIL AND EMAIL

Mses. Rose Joy Sundberg and Lisa Sundberg
Post Office Box 399
Trinidad, California 95570

Dear Mses. Rose Joy Sundberg and Lisa Sundberg:

The Region 5 office of U.S. EPA (EPA) has been working with the Lac du Flambeau Tribal Natural Resources Department on a path forward to further investigate and remediate contamination on your property. We have come to an agreement on implementing a pilot test to determine the effectiveness of a cleanup method, termed Air Sparge/Soil Vapor Extraction (AS/SVE), to remove contamination from subsurface soil and groundwater on and adjacent to your property. I am writing to request access to your property located at Parcels 12-8 and 12-13, HWY 70 West, Lac Du Flambeau, WI 54538. The purpose for access is to conduct work related to the pilot test, and if it proves successful, install a full-scale system which will cover a portion of your property and the property immediately west, the former Tower Standard Gas Station. Please see the attached figures outlining the area of the pilot test and an assumed treatment area for the full-scale system, a fact sheet titled "Citizen Guide to Air Sparging/Soil Vapor Extraction", and a brief description of expected activities and equipment used to install and operate an AS/SVE system. We also wish to access your property to conduct an archaeological survey in compliance with the National Historic Preservation Act. This would initially consist of field reconnaissance site visits but could also include conducting a field survey to determine the presence or absence of cultural resources within the project area. If artifacts are potentially present, EPA would need to take steps to protect them as construction activities progress at the site.

Appropriate access for EPA is essential to Site progress. EPA's current access agreement with you is only for limited monitoring work and because of this, we are seeking your agreement that we can expand federal access to your property to include the plans for a pilot test and installation of a full-scale system, additional sampling of environmental media, and installation of additional groundwater monitoring wells as necessary. As we had done previously, it is EPA's practice to negotiate and obtain consensual access directly from the property owner for conducting all federal activities on that owner's property.

A revised consent to access form is enclosed. We would appreciate it if you could review it and, if you consent, sign and return the form as soon as possible, but no later than 30 days from the date of this letter. Prompt response will allow us to move forward with contracting and other

necessary steps to take advantage of the 2020 construction season. Please return the signed form to EPA in the enclosed pre-paid priority mail envelope, or, if it is more convenient to you, send a scan of the signed document to Bob Egan of my staff at egan.robert@epa.gov. EPA's goal is to begin addressing the contamination at this Site during this upcoming construction season. In the absence of consent to access from you to EPA for this new work, EPA will not be able to proceed with the planned pilot test.

Please do not hesitate to call me at (312) 886-6945 or Bob Egan at (312) 886-6212 if you have any questions. We appreciate your past cooperation and look forward to working with you amicably to address the contamination referenced above.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jose Cisneros", with a stylized, flowing script.

Jose Cisneros, Chief
Remediation Branch
Land, Chemicals and Redevelopment Division

Enclosures

cc: Larry Wawronowicz, LDF
Chris Saari, WDNR

GENERAL DESCRIPTION OF AS/SVE PILOT TEST ACTIVITIES AND FULL-SCALE INSTALLATION

We have chosen an area for testing at the site which centers around the MW 21 well nest, located at the eastern edge of the Tower Standard property. A set of six soil vapor extraction (SVE) wells will be installed in a hexagonal pattern as shown in Figure 1. The hexagon will be about 50 feet in width. SVE wells will consist of 2-inch diameter pipes installed from ground level to about 5 feet below the water table. We also expect to install additional groundwater monitoring wells in the area as needed to sample groundwater during and after the test.

In the interior of the hexagonal area, we plan to install three shallow air sparge (AS) wells and three deep AS wells in order to inject air into the groundwater. Above-ground piping will be used to connect the system of wells to blowers and compressors in a trailer or building which houses the equipment. It is expected that the trailer or building will be located on the former restaurant property east of the Tower Standard site.

When all equipment is installed, testing will begin by operating the SVE portion of the system first. This will allow us to collect data on the area of influence of the wells in removing contamination from soils above the water table. The second part of the test will involve operating both the air sparge wells and the set of SVE wells to determine whether the system can remove contaminants from the groundwater and soil at the same time.

We expect the pilot test field work to last 2 to 3 weeks, after which the results will be evaluated. If determined to be successful, we will design a full-scale system, expanding the hexagonal pattern of air sparge and soil vapor extraction wells to encompass approximately the area shown in Figure 2. Spacing and the final number of wells will depend upon the results of the test. Final design will include below-ground piping, so no piping is expected to remain above ground once the system is installed. Locations of wells will have access points with small concrete pads at ground level and manhole covers to allow access to the wells for testing, similar to what has been used for groundwater monitoring well locations.

Typical AS/SVE systems operate for 2 to 3 years, with scheduled testing for operational efficiency and performance of removal of contaminants. Exiting vapors will be treated if necessary, to avoid unacceptable emissions of petroleum compounds to the air. This is typically completed through the use of carbon canisters.



- Existing Monitoring Well
- ⊕ Proposed Deep Air Sparge Well
- ⊕ Proposed Shallow Air Sparge Well
- Proposed Soil Vapor Extraction Well

Tower Standard LUST Site
Lac Du Flambeau, Wisconsin

Figure 1
Air Sparge / Soil Vapor Extraction
Pilot Test Location and Layout

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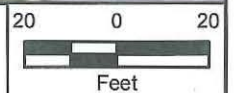
Source: ESRI World Imagery

Prepared By: Dimitri Acosta EPA R5 LCRD RB CAS3



-  Existing Monitoring Well
-  Proposed Air Sparge Well
-  Proposed Soil Vapor Extraction Well

Source: ESRI World Imagery



Tower Standard LUST Site
Lac Du Flambeau, Wisconsin

Figure 2
Conceptual Air Sparge / Soil Vapor
Extraction Full System Layout

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Agency

Prepared By: Dimitri Acosta EPA R5 LCRD RB CAS3

A Citizen's Guide to Soil Vapor Extraction and Air Sparging



What Are Soil Vapor Extraction And Air Sparging?

Both soil vapor extraction, or "SVE," and air sparging extract (remove) contaminant vapors from below ground for treatment above ground. Vapors are the gases that form when chemicals evaporate. SVE extracts vapors from the soil *above* the water table by applying a vacuum to pull the vapors out. Air sparging, on the other hand, pumps air underground to help extract vapors from groundwater and wet soil found *beneath* the water table. The addition of air makes the chemicals evaporate faster, which makes them easier to extract with another technology, such as SVE.

Both methods are used for chemicals that evaporate easily—like those found in solvents and gasoline. These chemicals are known as "volatile organic compounds," or "VOCs."

How Do They Work?

Extraction:

SVE involves drilling one or more *extraction* wells into the contaminated soil to a depth above the water table, which must be deeper than 3 feet below the ground surface. Attached to the wells is equipment (such as a blower or vacuum pump) that creates a vacuum. The vacuum pulls air and vapors through the soil and up the well to the ground surface for treatment.

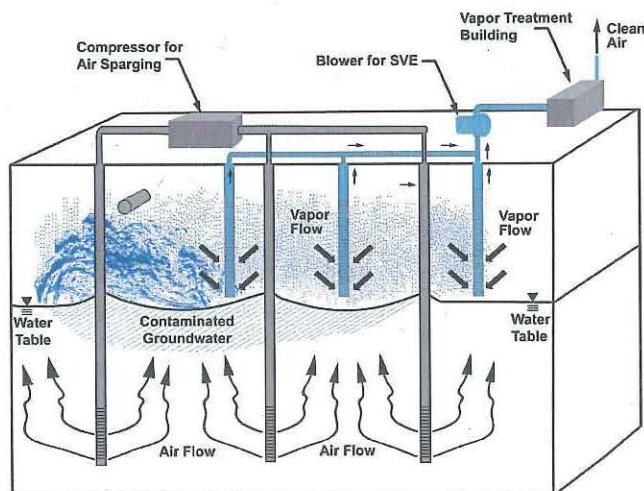


Illustration of a combined air sparging and SVE system.

Sometimes the ground must be paved or covered with a tarp to make sure that the vacuum does not pull air from above into the system. Pulling in clean air would reduce the efficiency of the cleanup. The cover also prevents any vapors from escaping from the ground to the air above.

Air sparging involves drilling one or more *injection* wells into the groundwater-soaked soil below the water table. An air compressor at the surface pumps air underground through the wells. As air bubbles through the groundwater, it carries contaminant vapors upward into the soil above the water table. The mixture of air and vapors is then pulled out of the ground for treatment using SVE.

Treatment:

Extracted air and contaminant vapors, sometimes referred to as "off-gases," are treated to remove any harmful levels of contaminants. The off-gases are first piped from the extraction wells to an air-water separator to remove moisture, which interferes with treatment. The vapors are then separated from the air, usually by pumping them through containers of activated carbon. The chemicals are captured by the carbon while clean air exits to the atmosphere. (See *A Citizen's Guide to Activated Carbon Treatment* [EPA 542-12-001.]).

Filter materials other than activated carbon may be used. In a process called "biofiltration," tiny microbes (bacteria) are added to break down the vapors into gases, such as carbon dioxide and water vapor. Another option is to destroy vapors by heating them to high temperatures.

How Long Will They Take?

Cleaning up a site using SVE or air sparging may take several years. The actual cleanup time depends on several factors. For example, cleanup may take longer where:

- Contaminant concentrations are high.
- The contaminated area is large or deep.
- The soil is dense or moist, which slows the movement of vapors.

These factors vary from site to site.

Are SVE And Air Sparging Safe?

When properly designed and operated, SVE and air sparging pose little risk to site workers or the community. Treatment of the vapors involves no harmful chemicals that must be transported to the site. Chemical vapors are contained from extraction to treatment so they cannot be accidentally inhaled by anyone nearby. Only clean air that meets air quality standards is released. The air released to the atmosphere following treatment may be sampled to make sure all harmful vapors have been removed or destroyed.

How Might It Affect Me?

Area neighborhoods may experience some increased truck traffic as the equipment for SVE or air sparging is delivered and later removed. Installation of the systems involves the use of drilling rigs and sometimes other heavy machinery to install wells, blowers, and treatment equipment. Sheds or larger buildings may be built to house the treatment systems, keeping any noise to a minimum. Workers will visit these systems regularly to ensure they are working.

Why Use Soil Vapor Extraction And Air Sparging?

SVE and air sparging are efficient ways to remove VOCs above and below the water table. Both methods can help clean up contamination under buildings, and cause little disruption to nearby activities when in full operation. SVE and air sparging are often used together. SVE and air sparging are being used or have been selected for use at approximately 285 and 80 Superfund sites, respectively.



Pipes transport vapors from the underground SVE extraction well to treatment.



Above-ground treatment system includes two tanks of activated carbon.

Example

Both SVE and air sparging are being used to clean up several acres of contaminated soil and groundwater at the Vienna PCE Superfund site in West Virginia. Two dry cleaning facilities contaminated the area with PCE (also known as perchloroethene or "perc"), a solvent used to clean clothing, forcing the shutdown of the town's drinking water wells.

In 2005, construction of the cleanup systems was completed and included 74 air sparging wells, 34 extraction wells, and four treatment buildings. The off-gases are piped to an air-water separator, followed by containers of activated carbon for treatment. By 2010, 1,618 pounds of PCE had been removed and PCE concentrations had decreased by as much as 99% in some wells. EPA will continue to operate the systems and monitor PCE levels until cleanup objectives have been reached throughout the site.

For More Information

For more information about this and other technologies in the Citizen's Guide Series, visit:

www.cluin.org/remediation

www.cluin.org/products/citguide

www.cluin.org/sve

www.cluin.org/airsparging

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United States
Environmental Protection
Agency

Office of Solid Waste and
Emergency Response
(5102G)

EPA 542-F-12-018
September 2012
www.epa.gov/superfund/sites
www.cluin.org

CONSENT FOR ACCESS TO PROPERTY

Parcels 12-8 and 12-13
Highway 70 West
Lac du Flambeau, WI 54538

Rose Joy Sundberg or Lisa Sundberg
PO Box 399
Trinidad, CA 95570

I hereby voluntarily consent to officers, employees, or authorized representatives of the United States Environmental Protection Agency (U.S. EPA), entering and having continued access to freely move about all property at Parcels 12-8 and 12-13, HWY 70 West, Lac du Flambeau, Wisconsin 54538, for the purposes of:

- 1) Conducting monitoring or testing of soils, air, surface water or ground water;
- 2) Conducting pilot tests for corrective action;
- 3) Taking corrective action; and
- 4) Conducting an archaeological survey

I realize these actions taken by U.S. EPA are undertaken pursuant to its enforcement responsibilities under the statutory authority of Section 9005 of the Resources Conservation and Recovery Act (RCRA), as amended, 42 United States Code Section 6991d.

This written permission and Consent for Access to Property is given by me voluntarily, on behalf of myself and all other co-owners of the above stated property, with knowledge of my right to refuse and without threats or promises of any kind.

Signature

Date